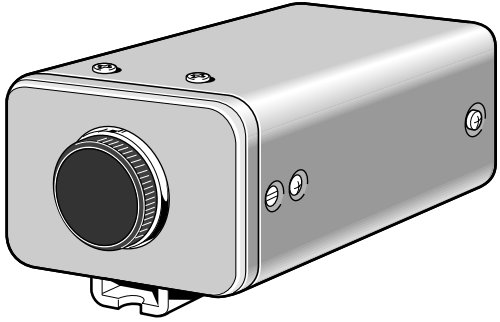
SANYO

VCC-6974

INSTRUCTION MANUAL
MANUEL D'INSTRUCTIONS
MANUAL DE INSTRUCCIONES

COLOR CCD CAMERA
CAMÉRA CCD COULEUR
CÁMARA CCD A COLOR



About this manual

Before installing and using the camera, please read this manual carefully. Be sure to keep it handy for later reference.

À propos de ce manuel

Avant d'installer et d'utiliser la caméra, veuillez lire ce manuel attentivement. Gardez-le à portée de main pour toute référence ultérieure.

Acerca de este manual

Lea cuidadosamente este manual antes de instalar y usar la cámara. Asegúrese de guardarlo a su alcance para futuras consultas.

Depending on the conditions of use, installation and environment, please be sure to make the appropriate settings and adjustments. If you need help with installation and/or settings, please consult your dealer.

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FEATURES

- Built-in interline transfer method 1/3" CCD, approx. 410,000 picture elements
- High sensitivity, minimum required illumination is 1.4 lux (F1.2)
- Horizontal resolution, more than 470 TV lines
- Digital motion detector with trigger output function
- Digital zoom with pan/tilt functions (up to X8)
- Up to 32 times electronic sensitivity function
- Equipped with connectors for AC 24 V and DC 12 V power supply
- RS-485 (SSP protocol) connector for remote controller (sold separately) connection

INFORMATION TO USER

Safety Guard

THIS SYMBOL INDICATES THAT THERE ARE IMPORTANT OPERATING AND MAINTENANCE INSTRUCTIONS IN THE LITERATURE ACCOMPANYING THIS UNIT.

WARNING:

TO PREVENT THE RISK OF FIRE OR ELECTRIC SHOCK , DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

For the customers in Canada

This Class B digital apparatus complies with Canadian ICES-003.

Pour la clientèle canadienne

Cet appareil numerique de la Classe B est conforme à la norme NMB-003 du Canada.

This installation should be made by a qualified service person and should conform to all local codes.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by **Sanyo** may void the user's authority to operate this camera.

PRECAUTIONS

In case of problem

Do not use the camera if smoke or a strange odour comes from the unit, or if it seems not to function correctly. Disconnect the power cord immediately, and consult your dealer (or a Sanyo Authorized Service Centre).

Do not open or modify

Do not open the cabinet, as it may be dangerous and cause damage to the unit. For internal settings and repairs, consult your dealer (or a Sanyo Authorized Service Centre).

Do not put objects inside the unit

Make sure that no metal objects or flammable substance get inside the camera. If used with a foreign object inside, it could cause a fire, short-circuits or damages.

If water or a liquid gets inside the camera, disconnect the power cord immediately, and consult your dealer (or a Sanyo Authorized Service Centre). Be careful to protect the camera from rain, sea water, etc.

Be careful when handling the unit

To prevent damages, do not drop the camera or subject it to strong shock or vibration.

Install away from electric or magnetic fields

If installed close to a TV, radio transmitter, magnet, electric motor, transformer, audio speakers the magnetic field they generate will distort the image.

Protect from humidity and dust

To prevent damages to the camera, do not install it where there is greasy smoke or steam, where the dampness may get too high, or where there is a lot of dust.

Protect from high temperatures

Do not install close to stoves, or other heat generating devices, such as spotlights, etc., or where it could be subject to direct sunlight, as that could cause deformation, discoloration or other damages.

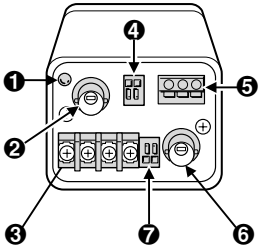
Be careful when installing close to the ceiling, in a kitchen or boiler room, as the temperature may raise to high levels.

Install where the temperature range will stay between –10˚C and 50˚C. (no condensation)

Cleaning

- Dirt can be removed from the cabinet by wiping it with a soft cloth. To remove stains, wipe with a soft cloth moistened with a soft detergent solution and wrung dry, then wipe dry with a dry soft cloth.
- Do not use benzine, thinner or other chemical product on the cabinet, as that may cause deformation and paint peeling. Before using a chemical cloth, make sure to read all accompanying instructions. Make sure that no plastic or rubber material comes in contact with the cabinet for a long period of time, as that may cause damage or paint peeling.

PARTS NAMES



❶ Power indicator (POWER)

Comes on when the power to the camera is on.

❷ Video output connector (VIDEO OUT: BNC type)

Connect this connector to a device such as a VCR or monitor with a **VIDEO IN** connector.

❸ 24 V AC or 12 V DC input terminal (AC 24 V, DC 12 V, GND)

❹ Remote control terminal (REMOTE, C, R)

R: Remote input

C: Common

❺ RS-485 control push-lock terminal (RS485, G, B, A)

A: Twisted-pair cable terminal

B: Twisted-pair cable terminal

G: Ground terminal

❻ External sync composite video signal input connector (VBS IN: BNC type)

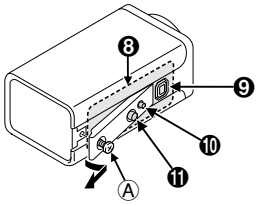
Connect to this connector the synchronizing signal output from a synchronizing signal device or the composite signal of a video distributor.

❼ Alarm output terminal (ALARM, C, A)

A: Alarm

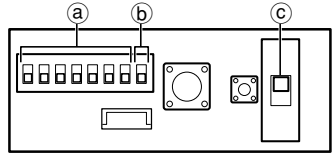
C: Common

PARTS NAMES



❽ Camera setup section (under the cover)

To access the controls, loosen the cover fixing screw Ⓐ, then remove the cover.



- ⓐ **Address setting switch (RS485 ADDRESS)** . . . See page **57**
- ⓑ **Terminater switch (TERMINATE)** . . . . . See page **57**
- ⓒ **Auto iris lens switch (A. I. LENS)** . . . . . See page **7**

❾ Lens iris output connector (LENS)

This 4-pin connector is used to send the DC control signal and power supply to an auto-iris type lens.

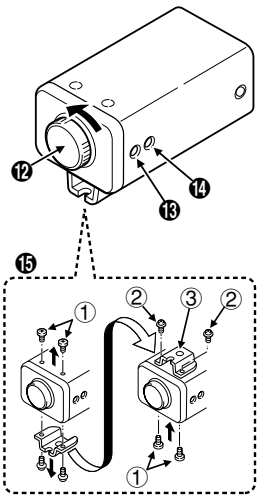
❿ Menu setting button (SET)

Connect the camera to the monitor, then press the **SET** button for about 3 seconds to display the on-screen menu.

⓫ Cursor button (CURSOR)

- ▲: Press this button to move the cursor up.
- ▶: Press this button to move the cursor to the right, or to turn the settings ON/OFF etc.
- ◀: Press this button to move the cursor to the left, or to turn the settings ON/OFF etc.
- ▼: Press this button to move the cursor down.

PARTS NAMES



⑫ Lens mount cap

The cap is installed to protect the lens mount section.

Remove the lens mount cap before installing a lens (sold separately).

⑬ Flange-back adjustment screw (FLANGE BACK ADJ) (See page 9)

⑭ Flange-back lock screw (FLANGE BACK LOCK)

⑮ Camera installation bracket

The bracket can be fixed at the top or bottom of the camera. When fixing the bracket, be sure to use the longer screws and install the shorter screws on the opposite side to seal the openings.

① **Shorter screws: M3 x 4**

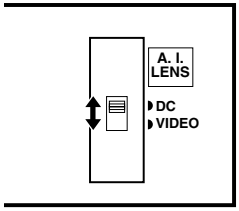
② **Longer screws: M3 x 6**

③ **Camera mounting screw hole: 1/4"-20 UNC**

CAUTION:

When installing the camera bracket, select a location that can support the total weight of the camera and accessories.

CONCERNING AUTO-IRIS LENSES



DC type auto-iris lens

A lens without amplifier circuit that operates only on a DC power source. In general, this type of lens is referred to as DC type coil lens or DC type non-amplifier lens.

(Set the **A.I. LENS** switch to the **DC** position.)

VIDEO type auto-iris lens

A lens with amplifier circuit that operates on video signal and DC power source. In general, this type of lens is referred to as EE amplifier type lens.

ALC and LEVEL volume level controls are available on the lens for iris adjustments.

(Set the **A.I. LENS** switch to the **VIDEO** position.)

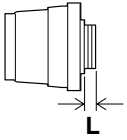
Compatible auto-iris lenses

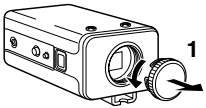
1/3 inch Sanyo DC type lens	VIDEO type lens
VCL-CS8LY: Standard angle, f= 8 mm	Standard angle, f= 9 mm
VCL-CS4LY: Wide angle, f= 4 mm	Telephoto angle, f= 12 mm
VCL-CS2LY: Ultra-wide angle, f= 2.8 mm	Greater telephoto angle, f= 16 mm

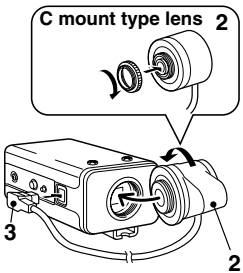
If using a VIDEO type auto-iris lens

- Set the **ALC** and **LEVEL** controls on the lens to adjust the iris. Normally the **ALC** volume should be turned all the way to **Av** (Average).
- Depending on the type of lens used, the lens may not perform properly. In such a case, adjust the **LEVEL** volume on the lens casing to correct.

MOUNTING THE LENS







CS mount type lens

Please use a DC type auto-iris lens (sold separately).

Checking the lens mount

Do not use a lens if length "**L**" is more than **5** mm. If not, that may damage the camera and prevent proper installation.

1 **Remove the lens mount cap from the camera.**

2 **Install the auto-iris lens.**

CS mount type lens

Carefully align the lens mount with the camera opening, then turn the lens slowly to install it.

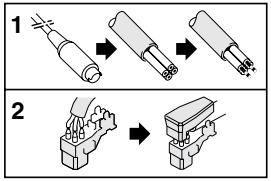
C mount type lens

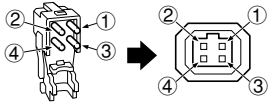
To allow for flange-back adjustment, install the supplied **C-mount adaptor** on the lens mount, then carefully align the lens mount with the camera opening and turn the lens slowly to install it.

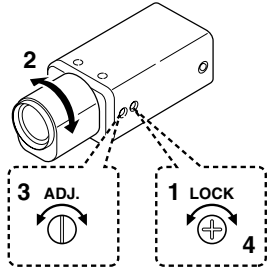
3 **Connect the lens plug to the lens iris output connector (LENS) on the side of the camera.**

When using lenses from other makers, the plug shape may not correspond to the terminal on the camera. In such a case, remove the original plug and using a soldering iron, connect the supplied **lens iris plug** according to the diagram. (Refer to page **9**.)

MOUNTING THE LENS







■ Rewiring the lens cable in the lens iris plug

1 Prepare the lens cable.

Cut the cable at the plug, then remove approx. 8 mm of the cable sheath and strip about 2 mm from each wire.

2 Install the lens iris plug.

Solder the cable to the pins following the correct pin layout (refer to the table and illustrations), then close the plug cover.

Pin layout

	DC type lenses	VIDEO type lenses
①	Brake coil (–)	+12 V DC (50 mA max.)
②	Brake coil (+)	Not used
③	Drive coil (+)	Video output (1.0 Vp-p, high impedance)
④	Drive coil (–)	Ground (for video signal and DC power)

■ Flange-back adjustment

If the pick-up surface is not correctly positioned with relation to the lens focal point, the picture will be out of focus (in particular when using auto-iris power zoom lenses, sold separately). If that is the case, adjust the flange-back position as described below.

1 Using a **+** screwdriver, loosen the **FLANGE BACK LOCK** screw (**M2:+**).

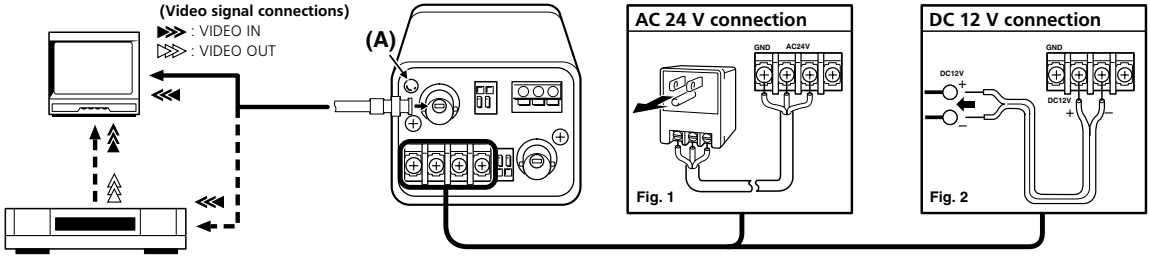
2 Set the zoom lens to the maximum telephoto position, set the focus using the focus ring on the lens.

3 Set the zoom lens to the maximum wide angle position, set the focus using the **FLANGE BACK ADJ.** screw.

4 Repeat steps 2 and 3, until the image stays in focus when changing from a telephoto shot to a wide angle shot. When the setting is complete, tighten the **FLANGE BACK LOCK** screw.

CONNECTIONS

■ Basic connection for monitoring or recording



The peripheral devices (VCR, monitor, lens, etc.) and cables are sold separately.

1 Make the video signal connection between the camera and the monitor or timelapse VCR.

2 Power supply choices

- When using an AC 24 V power supply (UL listed class 2 power supply), make the connections as indicated in **Fig. 1**.
- When using a DC 12 V power supply, make the connections as indicated in **Fig. 2**.

CAUTION:

- To prevent camera and/or power supply failure, pay close attention to polarity when making the connections.
- To prevent fire hazard any UL listed wire rated VW-1, should be used for the 24 V AC cable input terminal.

3 Insert the plug of this power supply into a wall outlet.

The **POWER** indicator **(A)** will light. Adjust the picture on the monitor using the Brightness and Contrast controls.

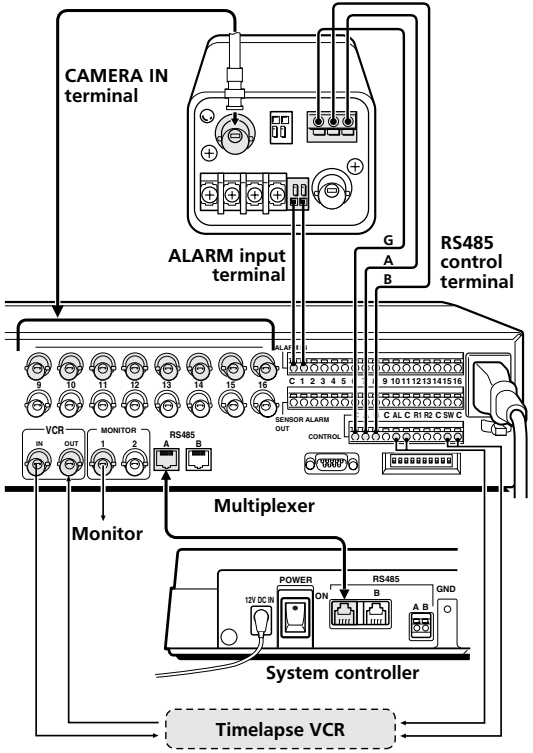
■ Coaxial cable type and maximum length

- Cable type RG-59U (3C-2V), 250 m maximum.
- Cable type RG-6U (5C-2V), 500 m maximum.
- Cable type RG-11U (7C-2V), 600 m maximum.

CAUTION:

- The RG-59U type cable should not be run through electrical conduits or through the air.
- Use CCTV/Video-grade coaxial cable.

CONNECTIONS



Before making any connection, make sure all the peripheral devices are turned off.

Multiple units are connected in series using twisted-pair cables (bridge connection). To set the addresses and make other fine adjustments, please refer to page **57**.

■ RS-485 terminal connections

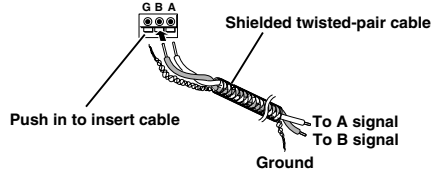
Connect a shielded twisted-pair cable (AWG22) from signal A to signal A, and from signal B to signal B of the RS485 control terminal of each of the devices.

- **Connection to a VCR**

Make the connection between the RS485 (A, B, G) terminal on this unit and the VCR RS485 A and B terminals and the C terminal.

- **Connection to a multiplexer**

Make the connection between the RS485 (A, B, G) terminal on this unit and the multiplexer control terminals (A, B, C).



CONNECTIONS

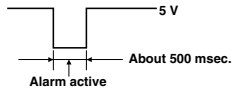
About the Alarm output terminal

Connect this unit to a VCR or a multiplexer.

Alarm output

A: Alarm signal output

C: Common



CAUTION:

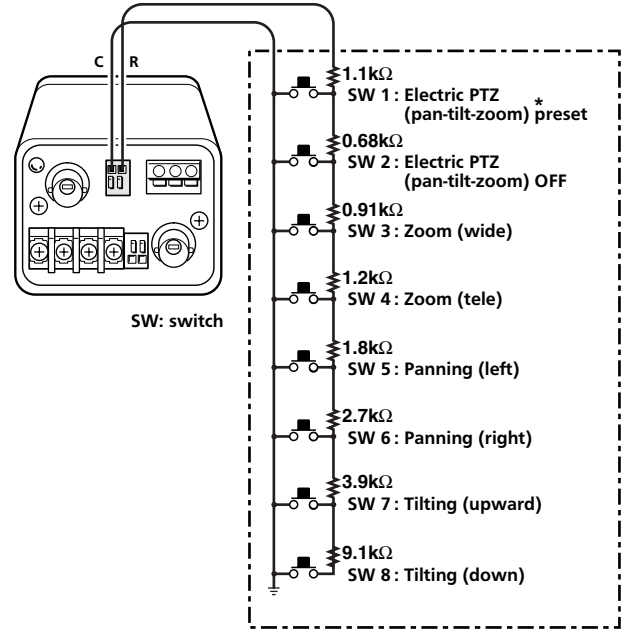
- The digital processing of the settings may disturb the image for a few seconds after the camera is turned on.
- While the menus are being set, noise sent on the lines by peripheral devices may cause the settings to change. In such a case, turn the power off then on again.

Remote controller circuit connections

Use the layout above to make a remote controller and make the connections to the remote input pins (C, R) of the **REMOTE** terminal as indicated. This will permit remote controlled operation of this unit. (make contact LOW input)

Note:

- The maximum length of cable for remote controlled operation is 6 m (AWG 24).
- If the ZOOM item in the **OPTION MENU** is set to **ON**, remote controlled zoom is possible even while the menu screens are displayed.



***Preset: will return to the zoom (pan, tilt) center position.**

USING THE MENU SCREEN

This unit is set at the factory so that it can be used with a DC type auto-iris lens (sold separately). Therefore, under normal conditions, additional settings or adjustments are not necessary. Depending on the conditions of use, if settings or adjustments are required they can be done from the "**MAIN MENU**" setting screen.

1 Press the SET button for about 3 seconds.

The **MAIN MENU** screen will be displayed.

2 Using the CURSOR button

① Press the **CURSOR** (▼) button to move the cursor down. When the cursor reaches the bottom of the screen, it goes back up to the top of the screen.

② Press the **CURSOR** (▲) button to move the cursor up. When the cursor reaches the top of the screen, it goes back down to the bottom of the screen.

③ Press the **CURSOR** (▶) button to move the cursor to the right. This button is also used to change ON/OFF settings etc.

④ Press the **CURSOR** (◀) button to move the cursor to the left. This button is also used to change ON/OFF settings etc.

■ **Switching to sub-menu screens**

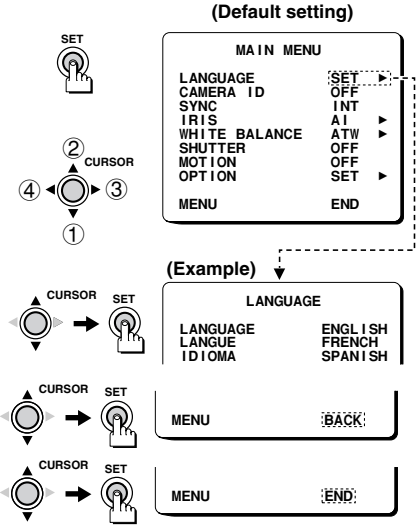
Press the **CURSOR** (▲, ▼, ◀ or ▶) button until an item with a "▶" next to it is flashing, then press the **SET** button.

■ **Switching to the MAIN MENU screen**

Press the **CURSOR** (▲ or ▼) button to select **BACK** (it will flash), then press the **SET** button.

3 When finished:

Press the **CURSOR** (▼) button to select **END** (it will flash), then press the **SET** button. The display will return to the normal monitor screen.



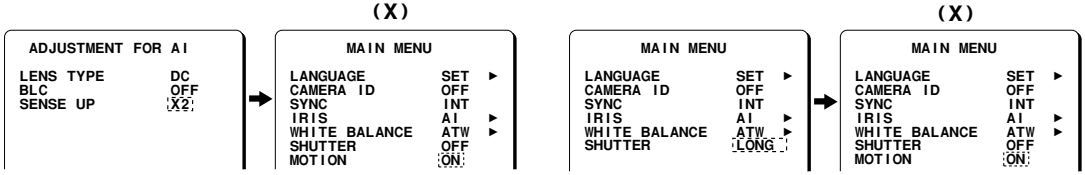
USING THE MENU SCREEN

■ Notes concerning the menu settings

- Modes that cannot be used together

  A) The IRIS item SENSE UP setting (other than OFF) and the MOTION item ON setting.

  B) The SHUTTER item LONG setting and the MOTION item ON setting.



- When the **IRIS** item **SENSE UP** is used (setting other than OFF), the **SHUTTER SPEED** cannot be set. (Set either one to OFF in order to use the other one.)
- If the **SHUTTER** item is set to **LONG** or **SHORT** and the **IRIS AI** or **EI** mode **SENSE UP** setting is used (setting other than OFF), the **SHUTTER** item setting will be forced to **OFF**.
- The **SHUTTER SPEED** cannot be set if the **IRIS** item is set to **EI** mode. Switch the **IRIS** item setting to **AI** mode.
- When the **OPTION MENU** screen **ZOOM** or **MIRROR** items are being used, the following items setting screens will not be zoomed in or mirrored.

  ☞ **The BLC setting screen**

  ☞ **The ADJUSTMENT FOR MOTION screen SIZE and MASKING setting screens**

  ☞ **The WHITE BALANCE item ATW MASKING screen**
- If the **OPTION MENU** screen **AGC** item is set to **OFF** and the **IRIS** mode **SENSE UP** setting is used (setting other than OFF), the **AGC** item setting will be forced to **ON**.

■ LANGUAGE setting

1 Press the SET button for about 3 seconds.

The **MAIN MENU** screen will be displayed.

2 Press the CURSOR (▲ or ▼) button until "SET" in the LANGUAGE item is selected, then press the SET button.

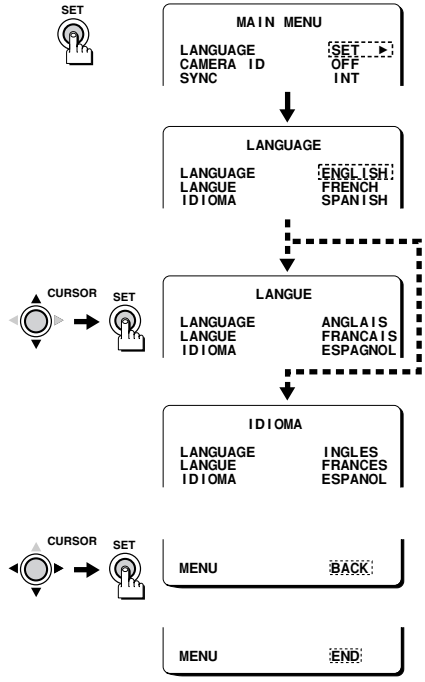
The **LANGUAGE** screen will be displayed. The initial setting is English, but French and Spanish can also be selected.

3 Select the desired language, then press the SET button.

The screen displays will change to the language selected.

4 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.



■ CAMERA ID setting

1 Press the SET button for about 3 seconds.

The **MAIN MENU** screen will be displayed.

2 Press the CURSOR (▼, then ◀ or ▶) button to change the CAMERA ID setting to "ON", then press the SET button.

The **CAMERA ID SETTING** screen will be displayed.

3 Example: To set the camera ID to "BN1"

The characters which have been selected will be displayed in the **CAMERA ID IS** "**????????**" section.

① Press the **CURSOR** (▶) button until "**B**" is flashing, then press the **SET** button.

② Press the **CURSOR** (▼ or ◀) button until "**N**" is flashing, then press the **SET** button.

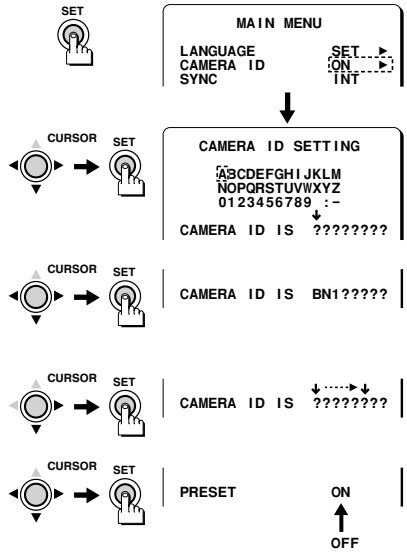
③ Press the **CURSOR** (▼ or ▶) button until "**1**" is flashing, then press the **SET** button.

☞ **Determining the start position for character input**

Press the **CURSOR** (▼) button until ⬇ is flashing, then press the **CURSOR** (◀ or ▶) button until the ⬇ is pointing to the start position. Select the characters using the **CURSOR** buttons.

☞ **Changing the camera ID to a new ID**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.



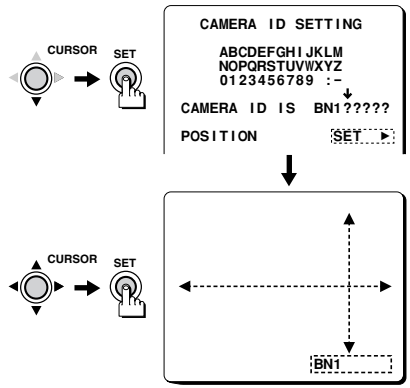
4 Press the CURSOR (▼) button to select "SET" as the POSITION setting (the setting will flash), then press the SET button.

The **CAMERA ID SETTING** screen will be displayed, and the set camera ID will flash at the position currently set.

5 Press the CURSOR (◀, ▶, ▲ or ▼) button to determine the display position, then press the SET button.

The display will return to the **CAMERA ID SETTING** screen.

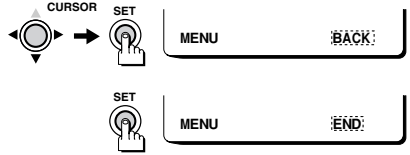
NOTE: If the **CAMERA ID** is reset (using the menu **PRESET** setting), its position will also be reset to the default position (right bottom corner).



6 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**



■ SYNC settings

The following three types of synchronization settings can be carried out.

A **Internal synchronization (INT)**

Generates a sync signal for internal camera use.

B **Power supply synchronization (L - L: line-lock)**

Matches the vertical sync signal for the camera with the frequency of the AC power supply.

C **External sync (VBS)**

Matches the camera's sync signal with the sync signal from an external source.

A Internal synchronization setting (INT)

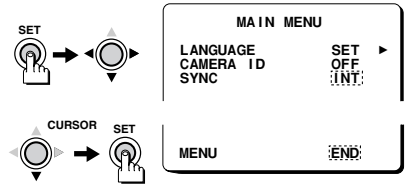
1 Press the SET button for about 3 seconds.

The **MAIN MENU** screen will be displayed.

2 Press the CURSOR (▼, then ◀ or ▶) button to change the SYNC setting to "INT" (the setting will flash).

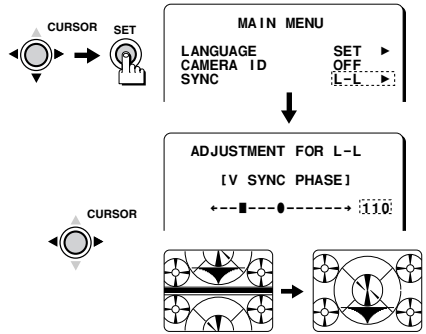
3 When finished:

Press the **CURSOR** (▼) button until **END** is flashing at the bottom of the screen, then press the **SET** button.
The display will return to the monitor screen.



B Power supply synchronization setting (L - L)

When using a camera switcher to connect 2 cameras or more to one monitor, there may be a vertical roll of the images when switched. In such a case, set as described below.



1 Press the CURSOR (▼, then ◀ or ▶) button to change the SYNC setting to "L - L" (the setting will flash), then press the SET button.

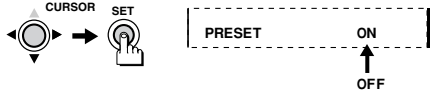
The **ADJUSTMENT FOR L - L** screen will be displayed.

2 Switch the display on the monitor from camera 1 to camera 2.

Press the CURSOR (◀ or ▶) button to adjust the vertical sync phase.

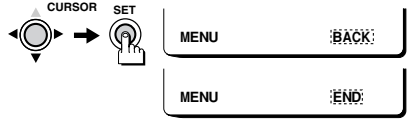
☞ **Returning the value to the default setting**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.



3 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.



☞ **To return to the previous screen, select BACK then press the SET button.**

Note: Power supply synchronization setting is not possible when a 12 V DC power supply is being used.

C External sync setting (VBS)

1 Connect the output signal from the other camera to the external sync input connector of this camera.

The **SYNC** setting in the **MAIN MENU** screen will change to **VBS**.

2 Press the CURSOR (▼) button to select the SYNC setting "VBS" (the setting will flash), then press the SET button.

The **ADJUSTMENT FOR VBS** screen will be displayed.

3 The H (horizontal) value will flash. Press the CURSOR (◀ or ▶) button to adjust the horizontal sync phase.

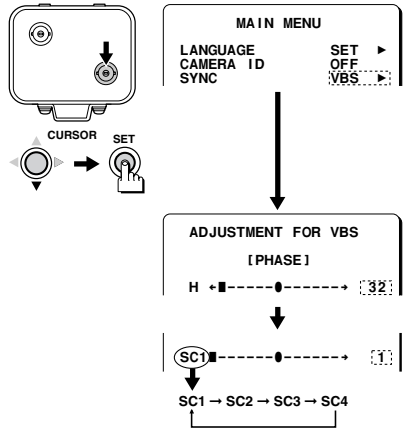
Note: If not using a camera (for the output signal), use a sync signal generator.

4 Press the CURSOR (▼) button until the SC1 (sub-carrier) value is flashing, then press the SET button to select the color phase (SC1 to SC4).

5 Press the CURSOR (◀ or ▶) button to make fine adjustments to the color phase.

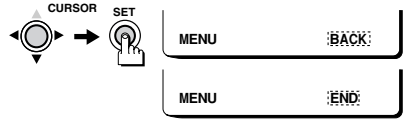
☞ **Returning the value to the default setting**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.



6 **When finished:**

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.



☞ **To return to the previous screen, select BACK then press the SET button.**

Note:

- If not using a camera to input the sync signal, use a sync signal generator, and input the VBS signal from the sync signal generator to the external input. Settings such as **INT** in the **SYNC** item will change automatically to **VBS**.
- When adjusting the horizontal sync phase, you must use an oscilloscope with a dual trace function.

■ IRIS setting

The following two types of iris level adjustment can be carried out.

A **AI (Auto-Iris):** This automatically adjusts the camera iris so that the optimum image can be obtained when an auto-iris lens is being used.

B **EI (Electronic Iris):** This method can be used for both a manual iris or fixed iris lens. It automatically adjusts the camera's shutter speed so that an optimum image can be obtained. (Refer to page **27**.)

A AI (Auto Iris) mode setting

1 Press the SET button for about 3 seconds.

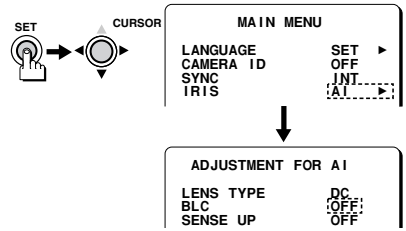
The **MAIN MENU** screen will be displayed.

2 Press the CURSOR (▼, then ◀ or ▶) button to change the IRIS setting to "AI" (the setting will flash), then press the SET button.

The **ADJUSTMENT FOR AI** screen will be displayed.

■ LENS TYPE setting

The **LENS TYPE** setting will automatically change to the mode (DC or VIDEO) which has been set using the auto-iris lens switch on the side of the camera.



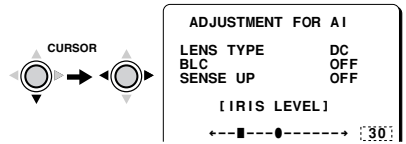
■ Adjust the IRIS LEVEL setting (DC type lens only)

Press the **CURSOR** (▼) button so that the **IRIS LEVEL** value is flashing, then press the **CURSOR** (◀ or ▶) button to adjust the **IRIS LEVEL** setting.

The larger the value, the greater the iris level.

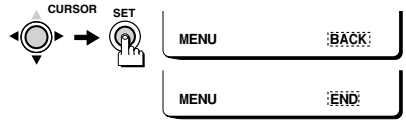
☞ **Returning the value to the default setting**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.



When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.



☞ **To return to the previous screen, select BACK then press the SET button.**

■ BLC setting

The following two types of BLC adjustment can be carried out

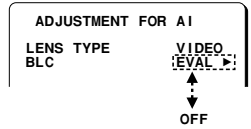
☞ **MULTI** (multi-spot photometry):

Brighter sections of the background are masked so that they do not affect photometry detection. Brighter sections of the background are determined on-screen, and they are masked so that they are in a position which do not affect the main subject (such as a person).

Note: If using a **VIDEO** type lens, the **MULTI** mode setting cannot be used.

☞ **EVAL** (5-section photometry):

Photometry and backlight correction are carried out so that the optimum image can be obtained, even if the subject's background is too bright.



BLC/MULTI (multi-spot photometry) mode setting (DC type lens only)

1 Press the CURSOR (▲, then ◀ or ▶) button so that "MULTI" is selected for BLC (the setting will flash), then press the SET button.

The **BLC MASKING** screen will be displayed. The mask cursor will also be flashing in the top-left corner of the screen.

2 Press the CURSOR (◀, ▶, ▲ or ▼) button to move the mask cursor to the place where photometry is not to be carried out, then press the SET button.

Continue pressing the **CURSOR** and **SET** buttons to apply masks to other areas. Masks can be applied to a maximum of 32 separate sections (4 x 8).

Note:

- If you apply a mask to a wrong area by mistake, press the **SET** button once more to clear the mask.
- When doing the **MULTI** setting, the dotted lines shown on the illustration are for clarity only, they do not actually appear on-screen.

3 When all masks have been applied, press the CURSOR (▼) button to move the mask cursor to the bottom edge of the screen, and continue pressing the CURSOR button for about 3 seconds.

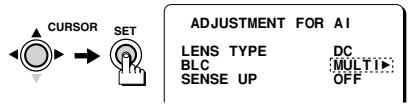
☞ **Returning to the default setting**

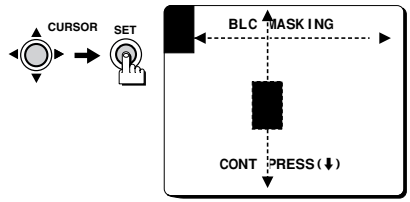
Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.

4 When finished:

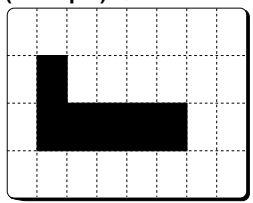
Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

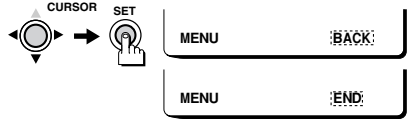
☞ **To return to the previous screen, select BACK then press the SET button.**





(Example) ⬇





BLC/EVAL (5-section photometry) mode setting

1 Press the CURSOR (▲, then ◀ or ▶) button so that "EVAL" is selected for BLC (the setting will flash), then press the SET button.

The **ADJUSTMENT FOR BLC** screen will be displayed, and the photometry mask will also be displayed in the center of the screen.

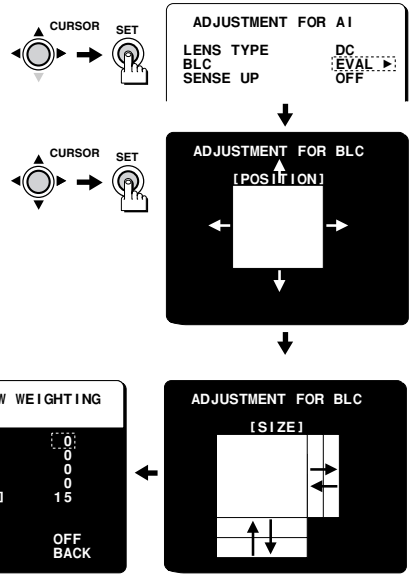
2 Press the CURSOR (◀, ▶, ▲ or ▼) button to move (up, down, right, left) the photometry area to the desired position, then press the SET button.

The **SIZE** screen will be displayed.

3 Press the CURSOR (◀, ▶, ▲ or ▼) button to change the size of the photometry area, then press the SET button.

The **BLC WINDOW WEIGHTING** screen will be displayed.

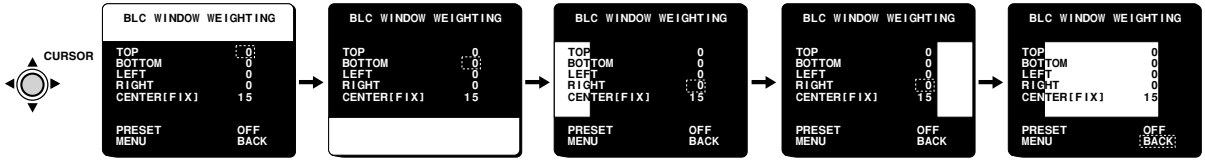
Note: When the **OPTION MENU** screen **ZOOM** or **MIRROR** item is being used (set to **ON**), the **BLC** (**MULTI** or **EVAL**) setting screen will not be zoomed in or mirrored.



4 Press the CURSOR (▼) button to select the photometry areas (TOP, etc.), and press the CURSOR (◀ or ▶) button to set the weighting (numeric value setting).

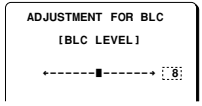
☞ **Weighting**

- Setting is possible within the range of 0 to 15.
- If set to 0, the light intensity will be ignored, and if set to 15, the light intensity will be measured with no adjustment.



Note:

- If using a **VIDEO** type lens, the center and the edges will each be divided into separate sections so that the weighting for the edges can be set. The larger the value, the more backlight correction is done for that area.
- When using a **VIDEO** type lens, the **ADJUSTMENT FOR BLC (SIZE)** setting will be larger than for a **DC** type lens.
- The **ALC** volume on the lens should be turned all the way to **Av** (Average).
- If the backlight correction function does not compensate properly for the conditions, correct using the **LEVEL** volume on the lens.



☞ **Returning the values to the default settings**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.

5 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen.
Then press the **SET** button. The **ADJUSTMENT FOR AI** screen will be displayed.

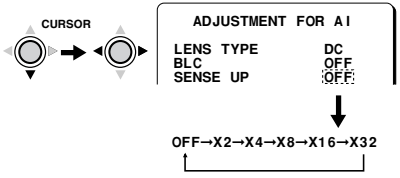
■ SENSE UP setting

Press the **CURSOR** (▼) button so that the **SENSE UP** setting is at **OFF** and is flashing, then press the **CURSOR** (◀ or ▶) button to set the exposure time.

The basic exposure time is 1/60 second (**SENSE UP** set to **OFF**), and the setting can be changed to X2, X4, X8, X16 or X32.

Note:

- When the **MOTION** item is set to **ON**, the **SENSE UP** setting is not possible.
- When filming moving subjects, the higher the **SENSE UP** setting (sensitivity), the more pronounced afterimage will be visible. Also, when the sensitivity is high, white dots will be visible on the screen, this is due to the CCD characteristics.



B EI (Electronic Iris) mode setting

The **EI** mode setting is the same as for the **AI** mode setting with a DC type lens, please refer to page **22**.

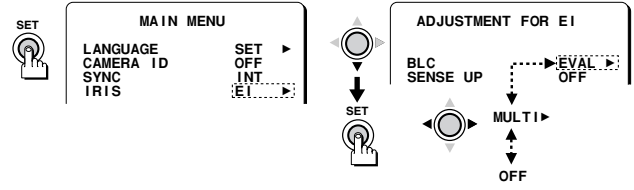
1 Press the CURSOR (▼, then ◀ or ▶) button until "EI" in the IRIS item is flashing, then press the SET button.

The **ADJUSTMENT FOR EI** screen will be displayed.

2 Press the CURSOR (▼, then ◀ or ▶) button to select MULTI or EVAL for the BLC (backlight correction) setting.

Note:

- When the electronic iris function captures a very bright subject (such as a light, etc.), the quantity of light entering the lens cannot be adjusted, and image smearing and other conditions may appear. In such a case, this can be prevented by changing the lighting angle or using an auto-iris lens.
- The **EI** mode setting is used for indoors only.
- If the camera location lighting if fluorescent, it will be scattered by the subject. To prevent this, it is recommended to change to incandescent lighting.



■ WHITE BALANCE setting

The following three types of white balance adjustment can be carried out.

A **Automatic color temperature tracking (ATW: Auto Trace White balance)**
This makes adjustments automatically so that the same colors can be obtained even if the illumination level changes.

B **Push-lock white balance (AWC: Auto White balance Control)**
One-push automatic white balance setting is possible. This is used mainly when the **ATW** setting does not reproduce faithful colors. Refer to page **31**.

C **Manual white balance (MWB)**
This lets you make fine adjustments to the color as desired. It can be used when the optimum color reproduction cannot be obtained by using **ATW**. Refer to page **32**.

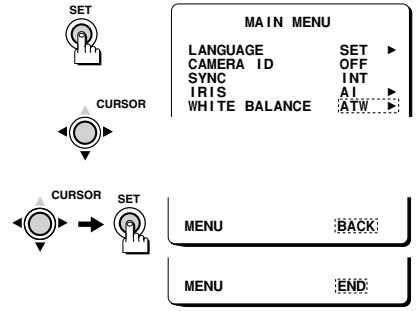
A Automatic color temperature tracking setting (ATW)

1 **Press the SET button for about 3 seconds.**
The **MAIN MENU** screen will be displayed.

2 **Press the CURSOR (▼, then ◀ or ▶) button to change the WHITE BALANCE setting to "ATW" (the setting will flash).**

3 **When finished:**
Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**



If there is a bright light source appearing on the screen, it may interfere with the white balance setting. In such cases, use the MASKING setting function to mask excessively bright areas so that they are not detected.

■ MASKING setting

1 Press the CURSOR (▼, then ◀ or ▶) button to change the WHITE BALANCE setting to "ATW" (the setting will flash), then press the SET button.

The **ADJUSTMENT FOR ATW** screen will be displayed.

2 Press the CURSOR (◀ or ▶) button to change the MASKING setting to "ON" (the setting will flash), then press the SET button.

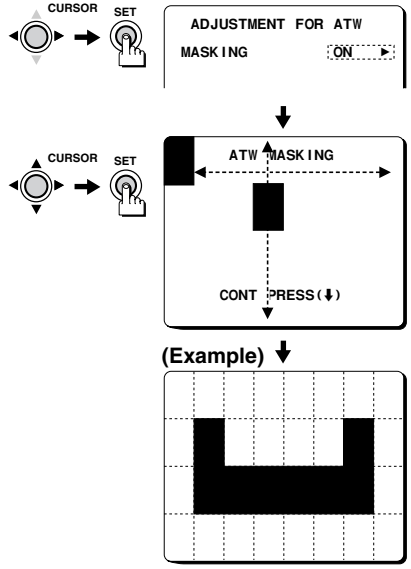
The **ATW MASKING** screen will be displayed, and the mask cursor will flash in the top-left corner of the screen.

3 Press the CURSOR (◀, ▶, ▲ or ▼) button to move the mask cursor to the place where color temperature tracking is not to be carried out, then press the SET button.

Continue pressing the **CURSOR** and **SET** buttons to apply masks to other areas. Masks can be applied to a maximum of 32 separate sections (4 x 8).

Note:

- If you apply a mask to a wrong area by mistake, press the **SET** button once more to clear the mask.
- When the **OPTION MENU** screen **ZOOM** or **MIRROR** items are being used (set to **ON**), the **MASKING** item setting screen will not be zoomed in or mirrored.
- The **MASKING** settings will also apply to the **AWC** mode.
- The dotted lines shown on the illustration are for clarity only, they do not actually appear on-screen.



4 When all masks have been applied, press the CURSOR (▼) button to move the mask cursor to the bottom edge of the screen, and continue pressing the CURSOR button for about 3 seconds.

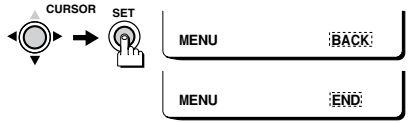
☞ **Returning to the default setting**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.

5 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**



B Push-lock white balance adjustment (AWC)

1 Press the CURSOR (▼, then ◀ or ▶) button to change the WHITE BALANCE setting to "AWC" (the setting will flash), then press the SET button.

The **ADJUSTMENT FOR AWC** screen will be displayed.

2 Press and hold the SET button.

While the **SET** button is pressed, **LOCK** will light steadily, and white balance adjustment begins. When you release the **SET** button, adjustment will stop and **LOCK** will begin flashing.

3 To make fine adjustments to the tint, press the CURSOR (▼) button to select the GO TO MWB setting "SET" (the setting will flash), then press the SET button.

The **ADJUSTMENT FOR MWB** screen will then be displayed. Refer to the manual white balance (MWB) adjustment procedure for details on how to adjust this setting.

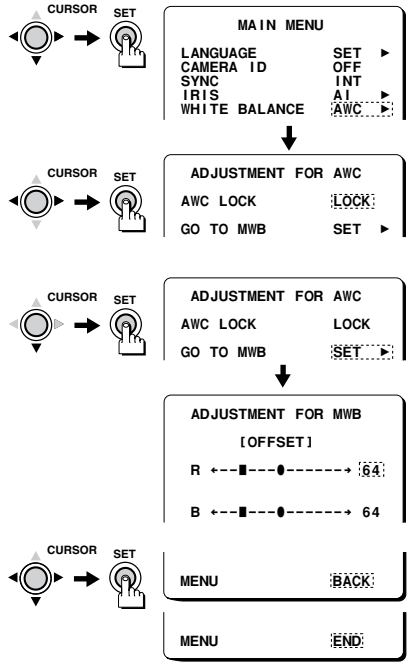
☞ **Returning to the default setting**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.

4 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**



C Manual white balance setting (MWB)

1 Press the CURSOR (▼, then ◀ or ▶) button to change the WHITE BALANCE setting to "MWB" (the setting will flash), then press the SET button.

The **ADJUSTMENT FOR MWB** screen will be displayed.

2 Press the CURSOR (▼, then ◀ or ▶) button to adjust the tint for the red (R) and blue (B) colors.

A setting towards the right will make the tint (Red or Blue) stronger.

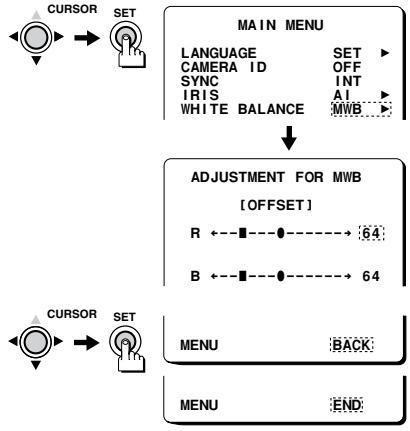
☞ **Returning to the default setting**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.

3 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**



■ Electronic SHUTTER setting

The following two types of shutter speed functions are available.

A **Short mode (SHORT):**

This shortens the exposure time so that you can film subjects which are moving quickly.

B **Long exposure mode (LONG):**

This is used for making dark scenes lighter, such as when filming at nighttime.

Note:

- The shutter speed can only be set when **IRIS** has been set to **AI** mode (manual iris or fixed iris lens).
- When the **SENSE UP** setting is used (setting other than OFF), the **SHUTTER SPEED** cannot be set. Also, the **SHUTTER** item setting will be forced to **OFF**.

A For SHORT mode

1 Press the SET button for about 3 seconds.

The **MAIN MENU** screen will be displayed.

2 Press the CURSOR (▼, then ◀ or ▶) button to change the SHUTTER setting to "SHORT" (the setting will flash), then press the SET button.

The **ADJUSTMENT FOR ES** screen will be displayed.

3 Press the CURSOR (◀ or ▶) button to change the shutter speed.

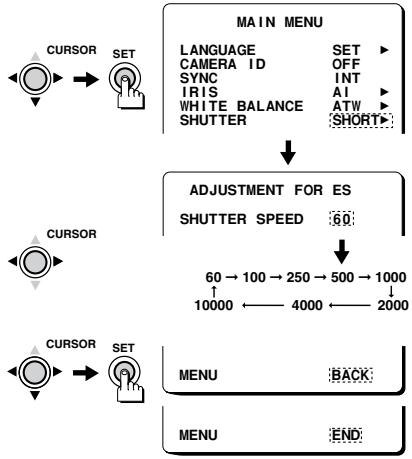
☞ **Returning to the default setting**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.

4 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**



B For LONG mode

1 Press the CURSOR (▼, then ◀ or ▶) button to change the SHUTTER setting to "LONG" (the setting will flash), then press the SET button.

The **ADJUSTMENT FOR ES** screen will be displayed.

2 Press the CURSOR (◀ or ▶) button to change the shutter speed.

☞ **Returning to the default setting**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.

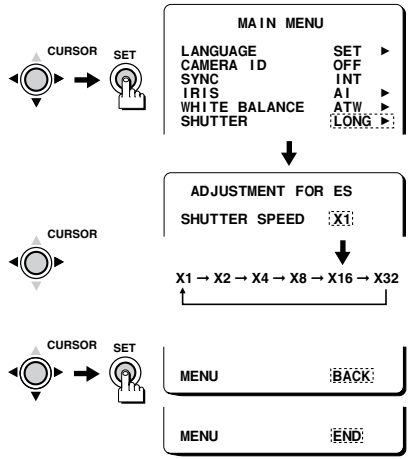
3 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**

Note:

- When **MOTION** is set to **ON**, **LONG** mode cannot be selected.
- When filming moving subjects, the higher the **SHUTTER SPEED** setting (acceleration), the more pronounced afterimage will be visible. Also, when the acceleration is high, white dots will be visible on the screen, this is due to the CCD characteristics.
- When the **SENSE UP** setting is used (setting other than OFF), the **SHUTTER SPEED** cannot be set. Also, the **SHUTTER** item setting will be forced to **OFF**.



■ MOTION setting

For the **MOTION** setting, the screen area is split up into 64 (8 X 8) detection areas where movements (or changes) are detected.

Then, using the **SENSITIVITY** and other menu settings, these movements can be set to trigger alarms. With these menu settings, you can set the **MOTION** setting to detect only the motions you require for your situation.

Though, the initial settings will provide adequate detection of movement, alarms may be triggered by motions that are normal and should be ignored. To customize the **MOTION** setting for your situation, use the **MASKING**, **SENSITIVITY**, and other menu settings.

For more details regarding the **MOTION** operation, refer to the examples given on page **46**.

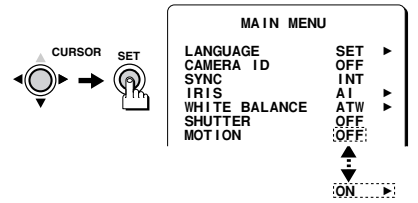
Note: **MOTION** settings are not possible if either of the following settings have been made:

☞ **The IRIS (SENSE UP) mode has been set. (Refer to page 27.)**

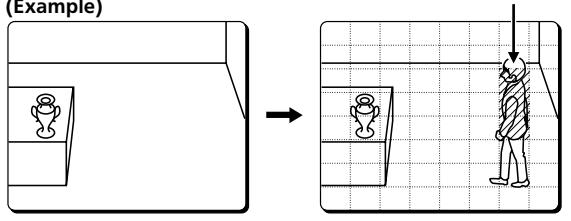
☞ **The SHUTTER (LONG) mode has been set. (Refer to page 35.)**

Note:

- When the **MOTION** default setting is **OFF**, movements will not be detected and alarms triggers will not be output.
- When doing the **MOTION** settings, the dotted lines and the mask shown on the illustrations are for clarity only, they do not actually appear on-screen.
- An alarm is output when all the parameters set for **ADJUSTMENT FOR MOTION** items are met.



(Example)



No movement sensed on-screen.

A moving subject is detected.

The following settings can be made from the **MOTION** menu.

A **Operating direction detection function (DIRECTION):**
Sets the camera to detect only movement in a certain direction.

B **Size setting function (SIZE):**
Sets the size of the objects to be detected when movement is being detected.

C **Mask area setting function (MASKING):**
Sets a mask for places where movement is not to be detected.

D **Sensitivity setting function (SENSITIVITY):**
Sets the amount of sensitivity for parameters such as movement, level, light difference and time interval.

E **Continuous electronic zoom function for movement detection (ZOOM):**
When a doubtful movement is detected, the zoom ratio is set to X2 and any further movement is tracked.

F **Alarm interval setting function (INTERVAL):**
Sets the amount of time for no output when an alarm is received.

G **Alarm signal setting function (ALARM SIGN):**
Causes the camera ID to flash when an alarm signal is detected.

Note:

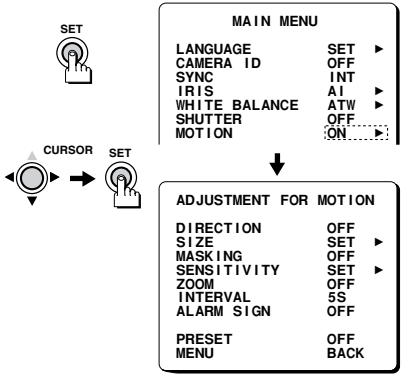
- If the whole background is empty, detection may not be performed properly.
- If the camera is subjected to vibration, incorrect detection may happen.
- Adjusting each item to the optimum setting will improve detection, however there will always be situations where incorrect detection or no detection happens.
- This unit is not desined for theft or fire prevention. No guarantee is given against any accident or damage that may occur.

1 Press the SET button for about 3 seconds.

The **MAIN MENU** screen will be displayed.

2 Press the CURSOR (▼, then ◀ or ▶) button to change the MOTION setting to "ON" (the setting will flash), then press the SET button.

The **ADJUSTMENT FOR MOTION** screen will be displayed.



A DIRECTION setting

Press the **CURSOR** (▲ or ▼) button to select the **DIRECTION** setting **OFF** (the setting will flash), then press the **CURSOR** (◀ or ▶) button repeatedly.

The following display will appear. Detection is carried out in the direction indicated by the arrow only.

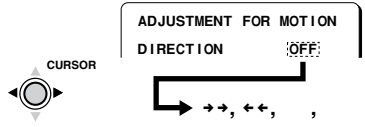
OFF: Any movement is detected, regardless of the direction

→→: Toward the right

←←: Toward the left

: Upward

: Downward



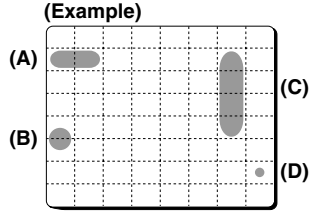
B SIZE setting

The **SIZE** setting will split the screen area in 64 (8 x 8) squares and the detection is made by measuring movement and changes in each of the squares. To set the size of the subjects to detect, it is necessary to set the number of squares where detection should happen simultaneously.

The **MOTION SIZE** setting lets you decide the size of subjects to detect by setting the number of contiguous squares in both directions (horizontal and vertical) where movement should be sensed simultaneously before an alarm trigger is output.

Fig. 1

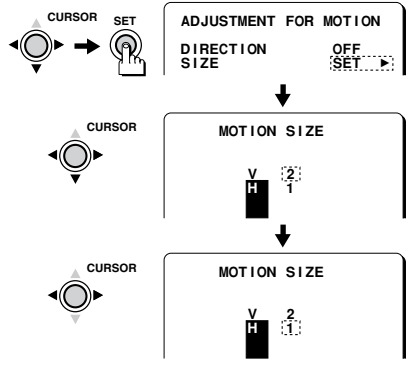
SIZE setting			Subject			
V	H	Size	A	B	C	D
2	1	▮	✕	○	○	✕
1	1	■	○	○	○	○
1	2	▬	○	✕	✕	✕
3	1	▮	✕	✕	○	✕



Example: The illustrated four types of moving subjects (**A**, **B**, **C**, **D**) will be sensed and an alarm trigger will be output or not, as shown in **Fig.1**, depending on the **SIZE** setting.

❍: An alarm is output

✕: No alarm is output



1 Press the CURSOR (▼) button to select the SIZE setting "SET" (the setting will flash), then press the SET button.

The **MOTION SIZE** screen will be displayed.

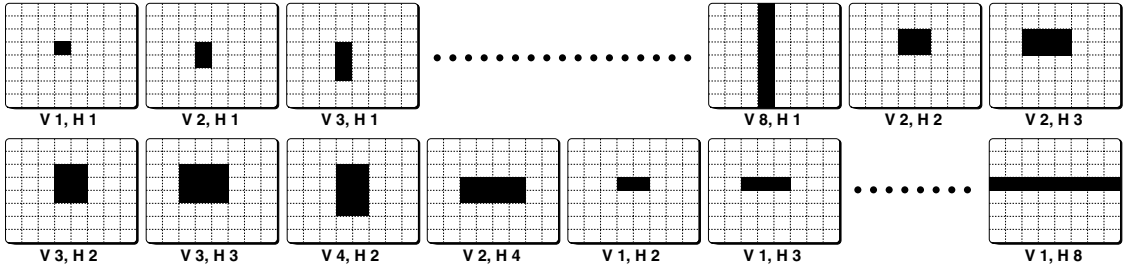
2 The V (vertical) value is flashing, then press the CURSOR (▶) button.

The size area will increase in the vertical direction, and the numeric value will also increase. Press the **CURSOR** (◀) button to decrease the size.

3 Press the CURSOR (▼) button so that the H (horizontal) value is flashing, then press the CURSOR (▶) button.

The size area will increase in the horizontal direction, and the numeric value will also increase. Press the **CURSOR** (◀) button to decrease the size.

■ **MOTION SIZE display table**

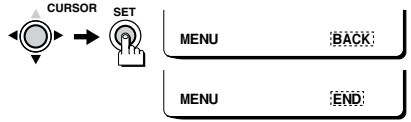


☞ **Returning to the default setting**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.

4 When finished.

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.



Note:

- If you set the area to a value greater than 8, the value will change back automatically to a value of 8 or less. The size area will be displayed on the screen for reference, but it will not necessarily be in the correct position.
- When the **OPTION MENU** screen **ZOOM** or **MIRROR** item is being used (set to **ON**), the **ADJUSTMENT FOR MOTION** screen **SIZE** and **MASKING** items setting screens will not be zoomed in or mirrored.
- If the **MOTION SIZE** setting is used, the backlight correction will not operate with a VIDEO type lens.

C MASKING setting

1 Press the CURSOR (▼, then ◀ or ▶) button to set MASKING to "ON" (the setting will flash), then press the SET button.

The **MOTION MASKING** screen will be displayed, and the mask cursor will flash in the top-left corner of the screen.

2 Press the CURSOR (◀, ▶, ▲ or ▼) button to move the mask cursor to the place where movement is not to be detected, then press the SET button.

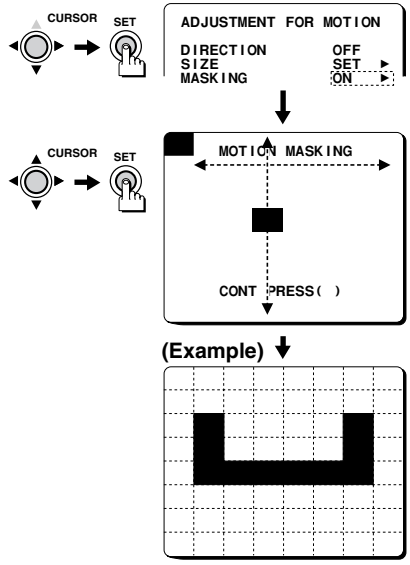
The position of the mask cursor will be fixed, and the area will increase each time the **CURSOR** button is pressed. Press the **CURSOR** button repeatedly to set the masking area. Masks can be applied to a maximum of 64 separate sections (8 x 8).

Note: If you apply a mask to a wrong area by mistake, press the **SET** button once more to clear the mask.

3 When the mask has been applied, press the CURSOR (▼) button to move the mask cursor to the bottom edge of the screen, and continue pressing the CURSOR button for about 3 seconds.

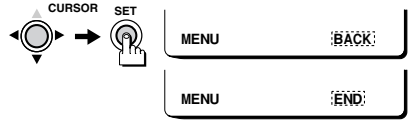
☞ **Returning to the default setting**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.



4 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.



☞ **To return to the previous screen, select BACK then press the SET button.**

Note:

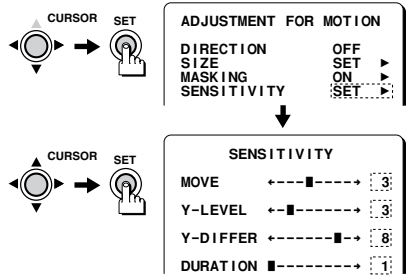
- When the **OPTION MENU** screen **ZOOM** or **MIRROR** item is being used (set to **ON**), the **ADJUSTMENT FOR MOTION** screen **SIZE** and **MASKING** items setting screens will not be zoomed in or mirrored.
- If the **MASKING** setting is used, the backlight correction will not operate with a VIDEO type lens.

D SENSITIVITY setting

The smaller the setting value, the greater the sensitivity.

Press the **CURSOR** (▼) button to select the **SENSITIVITY** setting "**SET**" (the setting will flash), then press the **SET** button.

The **SENSITIVITY** screen will be displayed.



MOVE

This sets the movement amplitude of subjects on the screen.

Press the **CURSOR** (◀ or ▶) button so that the **MOVE** value is flashing. **(Maximum: 6)**

Set the value to a large to avoid detecting slight movement such as movement caused by the wind.

Y-LEVEL

This sets the brightness level. Any signal darker that the set brightness will be ignored. This is mainly used to avoid incorrect detection caused by electronic noise in a dark picture.

Press the **CURSOR** (▼, then ◀ or ▶) button so that the **Y-LEVEL** value is flashing. **(Maximum: 10)**

Set the value to a large to avoid incorrect detection of movement caused by electronic noise from a dark picture.

Y-DIFFER

This sets the brightness change level. A lower setting will ignore bigger changes in the brightness.

Press the **CURSOR** (▼, then ◀ or ▶) button so that the **Y-DIFFER** value is flashing. **(Maximum: 10)**

This allows movement to be detected when there are variations in brightness. Set the value to a large if lights being turned on and off are not to be detected.

DURATION

This sets how long the moving subject should be on the screen before it is detected. A lower setting will set a longer on screen duration before the subject is detected.

Press the **CURSOR** (▼, then ◀ or ▶) button so that the **DURATION** value is flashing. **(Maximum: 60)**

Set the value to a large if objects which are moving fast are not to be detected.

Each setting step represents 1/12 of a second. The maximum on-screen duration that can be set is 5 seconds (1/12 x 60).

☞ **Returning to the default setting**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.

Note: If all the settings values are too large, alarm triggering may not operate as desired.

☞ **When finished:**

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

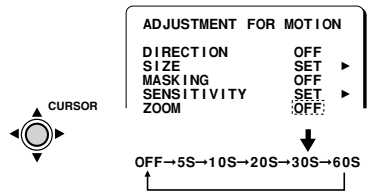
☞ **To return to the previous screen, select BACK then press the SET button.**

E ZOOM setting

Press the **CURSOR** (▲, then ◀ or ▶) button to select the **ZOOM** setting **OFF** (the setting will flash), then press the **CURSOR** button repeatedly.

The length of time for zoom display will be displayed. When a doubtful movement is detected, the moving object is followed at a zoom ratio of X2.

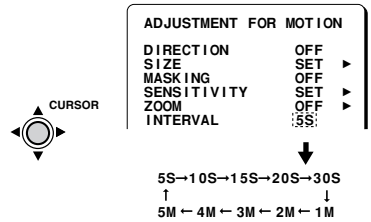
Note: The higher the **SENSITIVITY** screen **DURATION** item setting is, the longer it will take for the movement to be tracked. To track all movements set the **DURATION** to **1**.



F INTERVAL setting

Press the **CURSOR** (▼) button so that the **INTERVAL** value is flashing, then press the **CURSOR** (◀ or ▶) button repeatedly.

After an alarm signal has been output once, this sets the length of time that no further alarm signal is output when movement is detected.



G ALARM SIGN setting

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **ALARM SIGN** setting to **"ON**" or **"OFF**".

OFF: No alarm display appears

ON: The camera ID flashes when movement is detected.

Note: If the camera ID display is not turned on, the camera ID which has been set in the **CAMERA ID SETTING** screen will flash. The length of time that the camera ID flashes is the same as the length of time for the alarm ignore time (**INTERVAL**) setting.

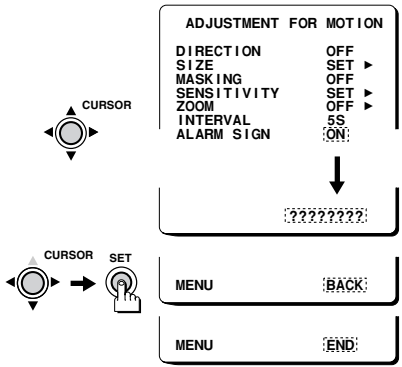
When finished

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**

☞ **Returning to the default setting**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.



Motion detector setting example

After the camera has been connected to the peripheral devices (VCR, multiplexer, etc.) set the **MOTION** item to send an alarm trigger to the peripheral devices when the set movement parameters are met.

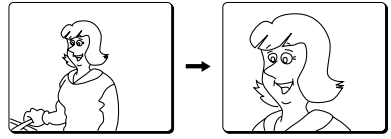
■ Checking the detected movements set by the MOTION item

If the **MOTION** item settings are not made properly, the desired results will not be obtained. To test for correct detection, please proceed as follows.

There are two setting checking methods, using the **ADJUSTMENT FOR MOTION** screen **ZOOM** or **ALARM SIGN**.

A) The image is zoomed in when a movement is detected

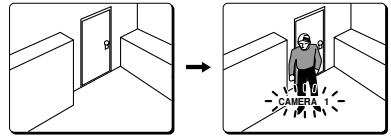
Set the **ZOOM** item to **5S**. When the motion detector senses a movement from a subject on the screen, the image is zoomed in.



B) The camera ID flashes on-screen when a movement is detected

Set the **ALARM SIGN** item to **ON**, then exit the menu screen. When the motion detector senses a movement from a subject on the screen, the camera ID is displayed on-screen.

Note: The camera ID will not be displayed while a menu is displayed on-screen.



■ DIRECTION setting

Select the desired direction arrows (ex.: ←←). The detection will be done when the subject moves in the direction of the arrows. For example, the setting can be done in order to detect a subject entering a room, but ignored when it is going out of the room.

■ SIZE setting

From the **SIZE SET** item switch to the **MOTION SIZE** screen. This setting allows you to set the area covered before detection is done.

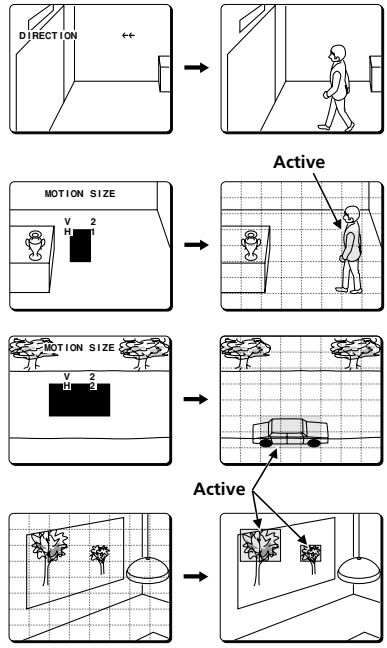
The default setting is 2 squares (1 horizontally, 2 vertically). Each square corresponds to 1/64 of the screen area (there are 64 (8 x 8) squares on the screen). The default setting will detect a movement that is sensed in 2 squares simultaneously.

Note:

- If set to 1 square, the detection rate will be the highest, any slight movement being detected.
- If set to 2 squares or more, movement must be detected simultaneously in all the squares, the detection rate will therefore be lower.

■ MASKING setting

Switch from the **MASKING** screen to the **MOTION MASKING** screen. In this screen, using a black mask, you can mask movements of subjects (like the swaying of a tree, or light flickering on the monitor screen) that should not be detected.



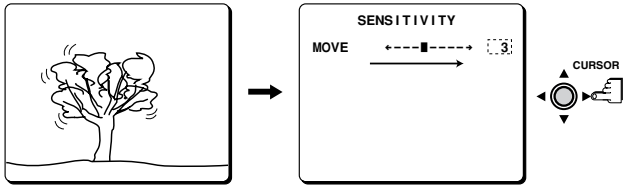
■ SENSITIVITY setting

From the **SENSITIVITY SET** item switch to the **SENSITIVITY** screen. In this screen, the sensitivity level setting will be higher towards the left and lower towards the right.

Note: If all the settings values are too large, alarm triggering may not operate as desired.

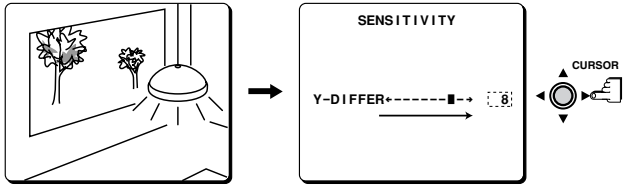
- **MOVE**

For a small movement such as a tree swaying, that should not be detected, make a setting towards the right.



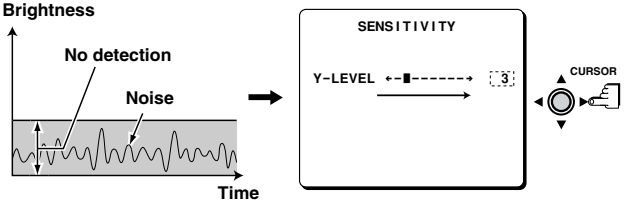
- **Y-DIFFER**

If lights are turned on and off causing brightness changes that should not be detected, make a setting towards the right.



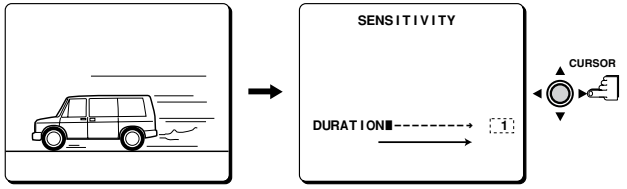
- **Y-LEVEL**

In a dark location, if electronic noise causes detection, make a setting towards the right.



- **DURATION**

If fast moving objects such as cars that should not be detected will cross the screen, make a setting towards the right.



■ OPTION settings

The following settings can be made from the **OPTION** menu.

A **APERTURE setting:**

This adjustment is used when you would like to correct outlines.

B **AGC setting:**

This automatically amplifies the image signal when filming in slightly dark places so that the picture becomes brighter.

C **GAMMA setting:**

The **GAMMA** characteristics can be set to "**1**" or "**0.45**".

D **ZOOM setting:**

A fixed mode and a variable mode are available. In fixed mode, the zoom ratios are set to X2, X4 and X8. In variable mode, the zoom ratio can be changed smoothly. Pan and tilt operations are also available.

E **MIRROR setting**

The image can be rotated horizontally then vertically or vertically then horizontally.

F **RS-485 setting**

You can set the communication parameters.

G **INITIAL setting:**

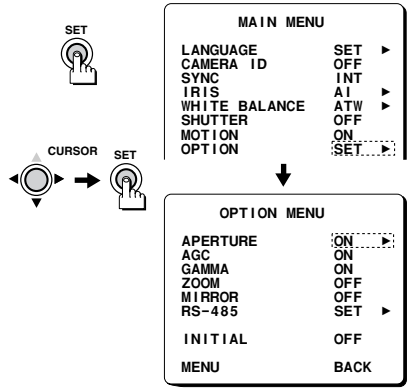
This returns all settings to the factory default settings (initial values).

1 **Press the SET button for about 3 seconds.**

The **MAIN MENU** screen will be displayed.

2 **Press the CURSOR (▼) button to select the OPTION setting "SET" (the setting will flash), and then press the SET button.**

The **OPTION MENU** screen will be displayed.



A APERTURE setting

1 Press the CURSOR (◀ or ▶) button to change the APERTURE setting to "ON" (the setting will flash), then press the SET button.

The **ADJUSTMENT FOR APERTURE** screen will be displayed.

2 Press the CURSOR (◀ or ▶) button so that the H (horizontal) value flashes, then correct the outlines in the horizontal direction.

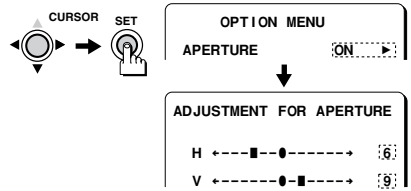
As the value increases, the correction amount increases.

3 Press the CURSOR (▼, then ◀ or ▶) button so that the V (vertical) value flashes, then correct the outlines in the vertical direction.

As the value increases, the correction amount increases.

☞ **Returning the values to the default settings**

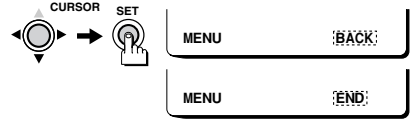
Press the **CURSOR (▼, then ◀ or ▶)** button to change the **PRESET** setting to **ON**, then press the **SET** button.



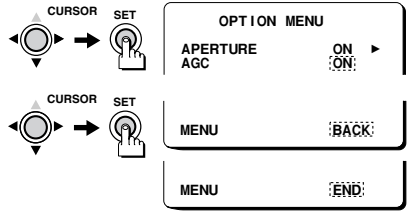
4 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**



B AGC setting



1 Press the CURSOR (▼, then ◀ or ▶) button to change the AGC setting to ON or OFF (the setting will flash).

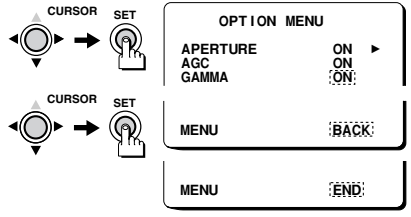
2 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**

Note: If the item **AGC** is set to **OFF** when the **SENSE UP** item is set to **ON**, the item **AGC** setting will be forced to **ON**.

C GAMMA setting



1 Press the CURSOR (▼, then ◀ or ▶) button to change the GAMMA setting to ON or OFF (the setting will flash).

ON: 0, 45

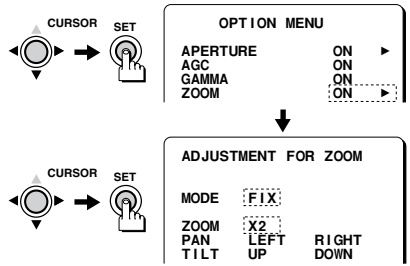
OFF: 1

2 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**

D ZOOM setting



1 Press the CURSOR (▼, then ◀ or ▶) button to change the ZOOM setting to "ON" (the setting will flash), then press the SET button.

The **ZOOM** screen will be displayed.
The **ADJUSTMENT FOR ZOOM** screen will be displayed.

2 Press the CURSOR (◀ or ▶) button to select either FIX (fixed) or VAR (variable).

■ For FIX mode

1) Press the CURSOR (◀ or ▶) button to select "FIX" as the MODE setting.

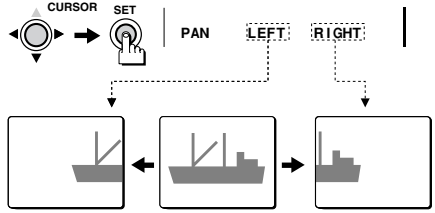
X2 will appear automatically for **ZOOM**.

2) Press the CURSOR (▼) button, then press the CURSOR (◀ or ▶) button repeatedly.

The image and the zoom ratio will change together (X2, X4 or X8).

PANNING:

- Press the **CURSOR** (▼) button to select the **PAN** setting "**LEFT**" (the setting will flash), then press and hold the **SET** button. The picture will pan toward the left.
- Press the **CURSOR** (▶) button to select the **PAN** setting "**RIGHT**" (the setting will flash), then press and hold the **SET** button. The picture will pan toward the right.

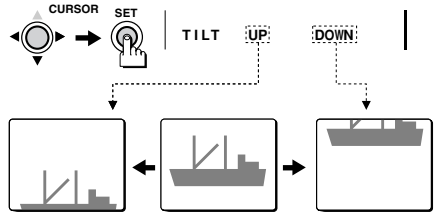


TILTING:

- Press the **CURSOR** (▼) button to select the **TILT** setting "**UP**" (the setting will flash), then press and hold the **SET** button. The picture will tilt upward.
- Press the **CURSOR** (▶) button to select the **TILT** setting "**DOWN**" (the setting will flash), then press and hold the **SET** button. The picture will tilt downward.

☞ **Returning to the default settings**

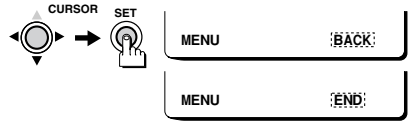
Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.



3) When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**



■ For VAR mode

Press the CURSOR (◀ or ▶) button to select "VAR" as the MODE setting.

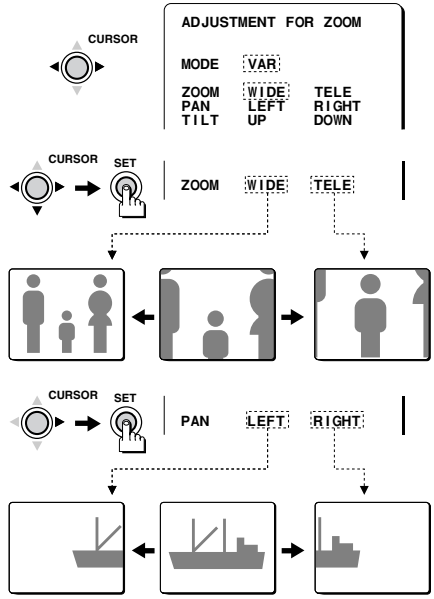
WIDE and **TELE** will appear automatically for **ZOOM**.

ZOOMING:

- Press the **CURSOR** (▼) button to select the **ZOOM** setting "**WIDE**" (the setting will flash), then press and hold the **SET** button. The screen will switch to **WIDE** mode.
- Press the **CURSOR** (▶) button to select the **ZOOM** setting "**TELE**" (the setting will flash), then press and hold the **SET** button. The screen will switch to **ZOOM** mode.

PANNING:

- Press the **CURSOR** (▼) button to select the **PAN** setting "**LEFT**" (the setting will flash), then press and hold the **SET** button. The picture will pan to the left.
- Press the **CURSOR** (▶) button to select the **PAN** setting "**RIGHT**" (the setting will flash), then press and hold the **SET** button. The picture will pan to the right.

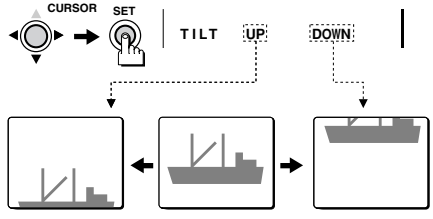


TILTING:

- Press the **CURSOR** (▼) button to select the **TILT** setting "**UP**" (the setting will flash), then press and hold the **SET** button. The picture will tilt upward.
- Press the **CURSOR** (▶) button to select the **TILT** setting "**DOWN**" (the setting will flash), then press and hold the **SET** button. The picture will tilt downward.

☞ **Returning the values to the default settings**

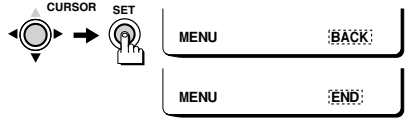
Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.



When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**



Note:

- The maximum zoom ratio in **VAR** mode is the current zoom ratio setting in **FIX** mode.
- When **ZOOM** in the **OPTION MENU** has been set to **ON**, the **PAN** and **TILT** settings will automatically change to the settings which were last made.

If the ZOOM item in the OPTION MENU is set to "ON", while a normal screen is displayed, simply press the CURSOR buttons for pan and tilt operations.

Note:

- This will operate if a setting (**5S** to **5M**) is made for the **ZOOM** item in the **ADJUSTMENT FOR MOTION** menu. If a subject movement is detected and the **ZOOM** function operates (the pan and tilt operations being also included), the **CURSOR** buttons manual pan and tilt operations will not be possible.
- The **ZOOM** function enlarges a portion of the image, resulting in a lower on-screen resolution.

E MIRROR setting

1 Press the CURSOR (▼, then ◀ or ▶) button to change the MIRROR setting to "H" (the setting will flash).

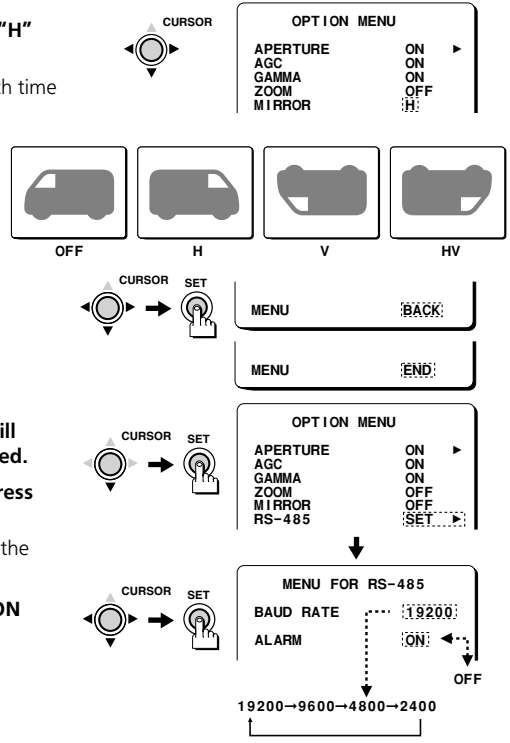
The image will be inverted horizontally. The image will change as described below each time the **CURSOR** button is pressed.

- **OFF**: Normal image
- **H**: Inverted horizontally
- **V**: Inverted vertically
- **HV**: Inverted horizontally and vertically

2 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**



F RS-485 setting

1 Press the CURSOR (▼) button to select the RS-485 setting "SET" (the setting will flash), then press the SET button. The MENU FOR RS-485 screen will be displayed.

2 Press the CURSOR (▼) button so that the BAUD RATE value is flashing, then press the CURSOR (◀ or ▶) button to change the communication speed.

Note: The **BAUD RATE** setting should be compatible with the transmission speed of the peripheral devices.

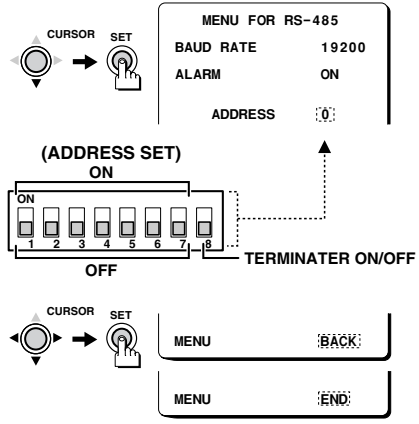
3 Press the CURSOR (▼, then ◀ or ▶) button to change the ALARM setting to ON (the setting will flash), then set the alarm transmission.

ON: Alarm signals are sent to the controller

OFF: Alarm signals are not sent to the controller

ADDRESS setting

If the **ADDRESS** setting on the screen is **0**, this means that the camera's RS-485 address is currently set to 0. If the address is changed using the address setting switches at the side of the camera as shown in the illustration, the new address will be displayed on the screen.



TERMINATE setting

The **DIP** switches need to be set when a computer, special controller, etc. connected to the RS-485 connectors is used to control the camera. Make sure to turn the camera power off before setting the **DIP** switches.

About SW No.

1-7: To setup the camera address (only when using the RS-485 connector).
Switch 1 is the least significant bit (LSB) and switch 7 the most significant bit (MSB) (Down: 0, Up: 1). This setting is done according to a binary code.

8: To setup the termination (only when using the RS-485 connector).

OFF side (down): Not terminated

ON side (up): Terminated

☞ **Returning the values to the default settings**

Press the **CURSOR** (▼, then ◀ or ▶) button to change the **PRESET** setting to **ON**, then press the **SET** button.

When finished

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**

G INITIAL setting

This lets you return all settings to the factory defaults.

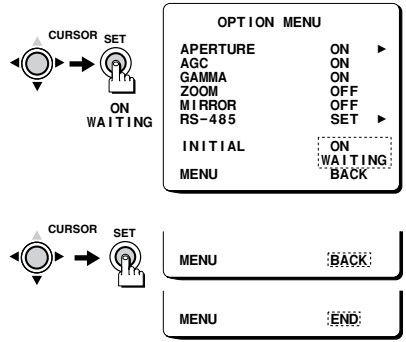
1 Press the CURSOR (▼, then ◀ or ▶) button to set INITIAL to "ON" then press the SET button.

If **ON** is selected, **WAITING** will flash underneath the word **ON**, then all settings will be returned to the factory defaults.

2 When finished:

Press the **CURSOR** (▼) button to select **BACK** (it will flash) at the bottom of the screen. Then press the **CURSOR** (◀ or ▶) button to change **BACK** to **END**, and press the **SET** button.

☞ **To return to the previous screen, select BACK then press the SET button.**



OPERATIONS USING THE SYSTEM CONTROLLER

■ Operations using the camera MENU screens

1 Press the **INDIVIDUAL** button.

2 Press the **MODE** button to select **CM**.

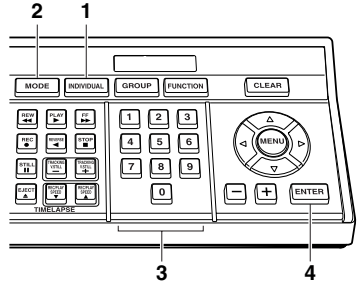
3 Use the numeric buttons to enter the address (camera).

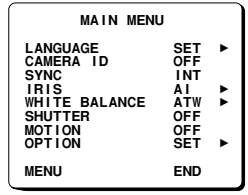
4 Press the **ENTER** button to accept the address.

5 Press the **MENU** button.
The **MAIN MENU** screen will be displayed.

Note:

- The **CURSOR** buttons on the camera correspond to the ◁, ▷, △ and ▽ buttons on the controller.
- The **SET** button on the camera corresponds to the **ENTER** button on the controller.





OPERATIONS USING THE SYSTEM CONTROLLER

Operations using the camera command (CAMERA) button

1 Press the **INDIVIDUAL** button.

2 Press the **MODE** button to select **CM**.

3 Use the numeric buttons to enter the address (camera).

4 Press the **ENTER** button to accept the address, then use the command buttons for subsequent operations.

A: Electronic zoom

1) Zoom (T, W) operations

Press the **ZOOM (T)** or **ZOOM (W)** button.

2) Setting and clearing zoom mode

- Press the **ZOOM PRESET** button then press the "**–**" button.

  The zoom mode will be set and electronic zoom will be canceled.
- Press the **ZOOM PRESET** button once more then press the "**+**" button.

  Electronic zoom mode will be set.

3) Pan and tilt operations (operation in normal screen mode)

If the electronic zoom mode is set to **ON**, press the ◁ (▷, △ or ▽) button. The focus will return to the center of the screen when the **0** button is pressed.

B: Iris level operations

If using a DC-type auto-iris lens, the iris opening can be controlled. If using a video-type or manual-type auto-iris lens, no operation can be carried out.

1) Lens iris opening

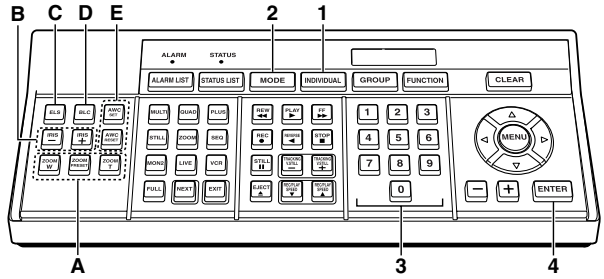
Press the **IRIS+** button to open the iris, and press the **IRIS–** button to close the iris.

2) Returning the iris to the initial opening setting

Press the **IRIS+** and **IRIS–** buttons simultaneously.

3) Error information when using a video-type auto-iris lens or when the camera iris setting is EI mode

An **Error** display will appear on the menu screen of the controller.



C: Setting the SENSE UP and electronic shutter

1) If the SHUTTER setting in the camera's main menu is set to LONG or SHORT, you can change the SHUTTER SPEED setting.

- Press the **ELS** button, then press the "**+**" button to turn on the electronic shutter.
- Press the **ELS** button, then press the "**–**" button to turn off the electronic shutter.

2) If the SHUTTER setting in the camera's main menu is set to OFF, you can change the SENSE UP setting.

- Press the **ELS** button, then press the "**+**" button to turn on the **SENSE UP** setting.
- Press the **ELS** button, then press the "**–**" button to turn off the **SENSE UP** setting.

Note:

- If the **SENSE UP** zoom ratio setting has not been changed, then the zoom ratio will be set to the factory default setting, which is X8.
- If the **MOTION** setting is at **ON**, the electronic sensitivity (**SENSE UP**) will not operate.
- If the **SHUTTER** item **SHORT** and **LONG** settings default values have not been changed, the **SHORT** setting will be 1/100S and the **LONG** setting will be X8.

D: Backlight correction settings

1) Turning backlight correction on

Press the **BLC** button then press the "**+**" button.

2) Turning backlight correction off

Press the **BLC** button then press the "**–**" button.

If the **BLC** setting has not been changed, then the mode will be set to **EVAL** mode when the backlight correction is turned on.

E: White balance and AWC-LOCK settings

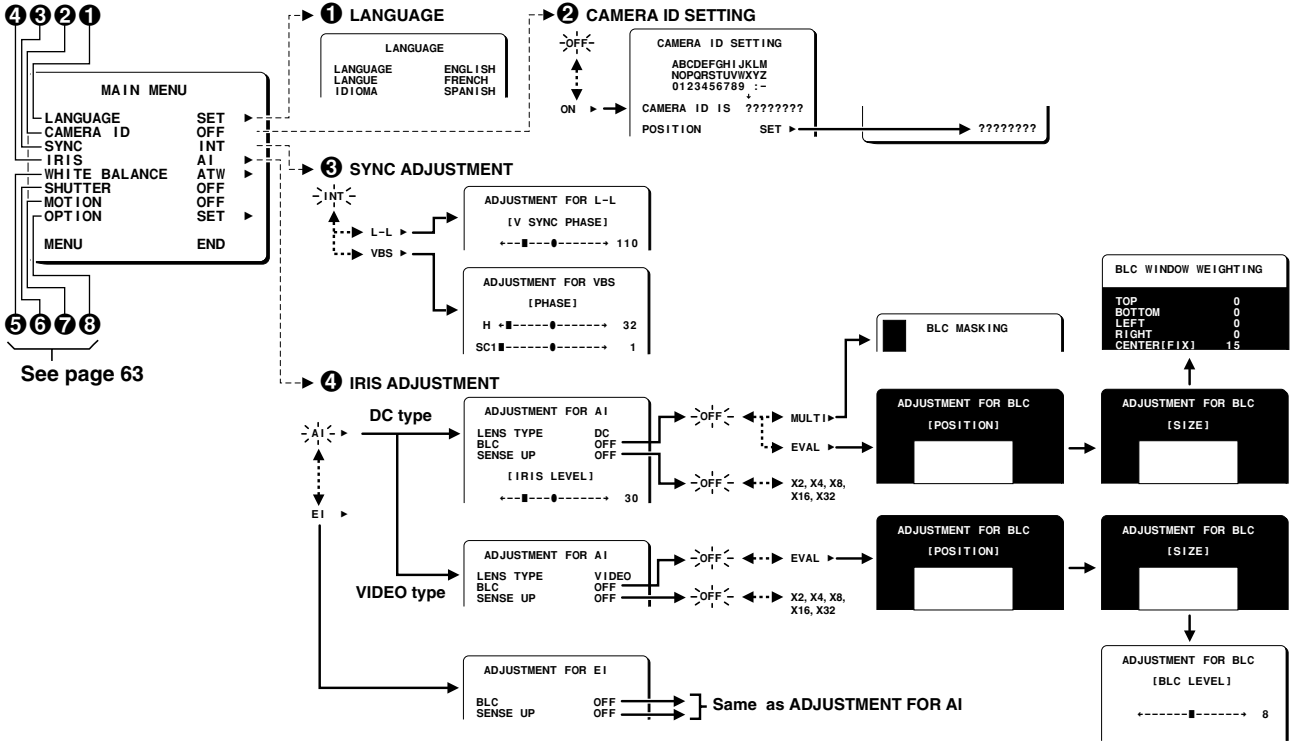
1) White balance lock

Press the **AWC SET** button.

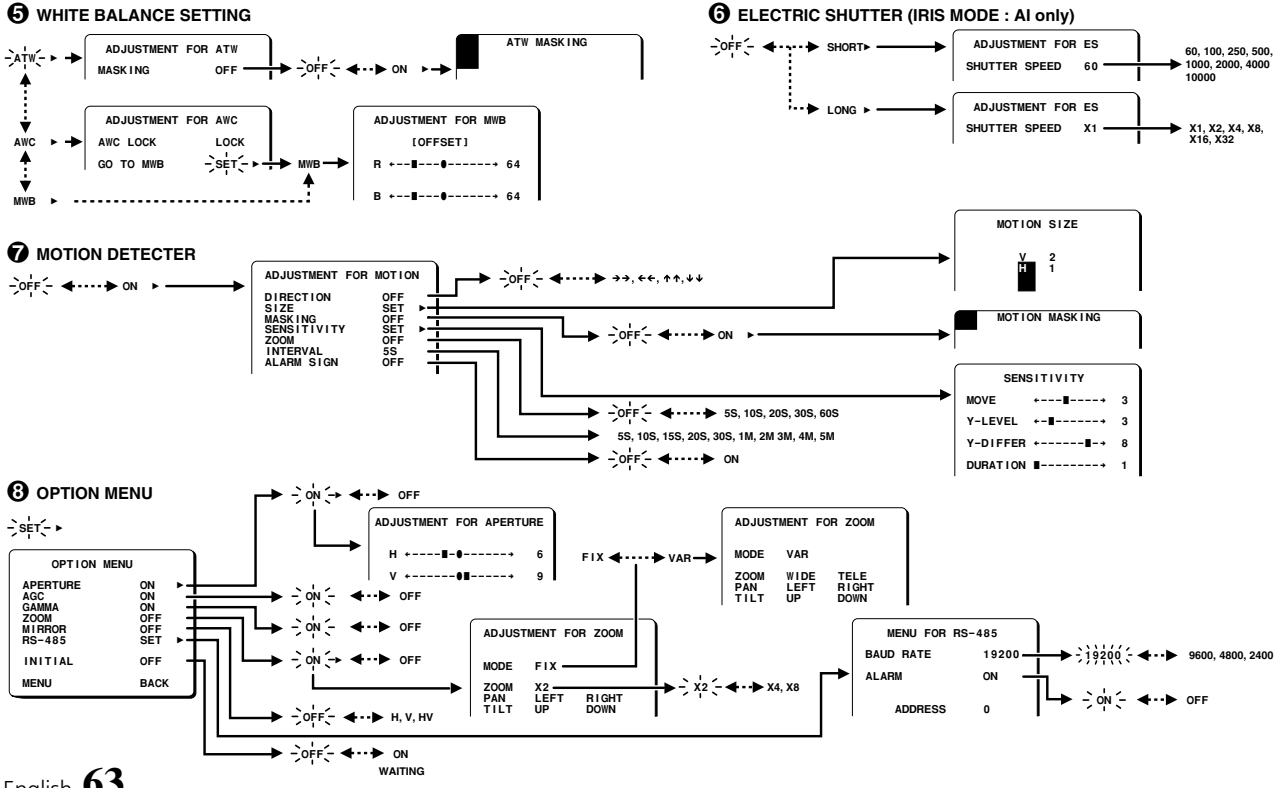
2) Returning to the white balance mode previously active

Press the **AWC RESET** button.

MENU DISPLAY



MENU DISPLAY



TROUBLESHOOTING

Before taking the camera for repairs, please check below to make sure that the camera is used correctly. If it still does not perform correctly, please consult your dealer or a Sanyo Authorized Service Center.

■ No picture on the monitor screen

- Is the power turned on to all connected devices? Is the voltage correct?
- Are all the signal connecting cables correctly connected?
- Is the lighting sufficient?
- Has the lens cap been removed?
- Is the lens type (**DC** or **VIDEO**) correctly selected?
  Depending on the type of lens, the **A. I. LENS** switch must be set accordingly.
- Is the iris control correctly set?
  A: When using a **DC** type lens, the **LEVEL** volume (inside the camera casing) should be adjusted.
  B: When using a **VIDEO** type lens, the **LEVEL** volume (on the lens) should be adjusted.

■ The picture is not clear

- Is the monitor correctly adjusted?
- Is the flange-back position correctly set?
- Is the lens focus correctly adjusted?
- Are the lens surfaces clean?
  If there is dust or finger prints on the lens, the image quality will deteriorate. To clean the lens use a soft cloth or a commercially available lens cleaning set.

SERVICE

This camera is a precision instruments and if treated with care, will provide years of satisfactory performance. However, in the event of a problem, the owner is advised not to attempt to make repairs or open the cabinet. Servicing should always be referred to your dealer or Sanyo Authorized Service Center.

SPECIFICATIONS

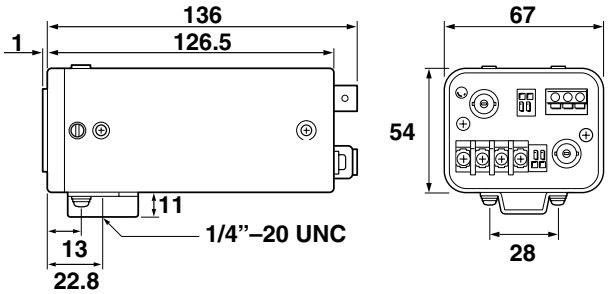
Camera:

Scanning system : NTSC standard TV system (525 TV lines, 30 frames/sec.)
Interlace : PLL 2:1 interlace
Image device : 1/3 inch solid state image device CCD
Picture elements : 811 (H) x 508 (V)
Effective picture elements : 768 (H) x 494 (V)
Synchronizing system : Internal sync, Line lock sync switchable, External sync
Resolution : 470 TV lines horizontally, 350 TV lines vertically
Video output level : 1.0 Vp-p/75 ohms, composite
Video S/N ratio : More than 48 dB
Minimum required illumination (incandescent lighting) : Approx. 0.05 lux with a F 1.2 lens (32X electronic sensitivity),
Approx. 1.4 lux with a F 1.2 lens (normal mode)
Backlight compensation : ON/OFF setting, Multi-zone light measuring system (Active when using an auto-iris lens)
Iris function : Manual ON/OFF switching
Electronic iris range : 1.4 lux to 70,000 lux (F 1.2, lens: color mode)
2.0 lux to 100,000 lux (F 1.4, lens: color mode)
Flange-back : 12.5 mm ± 0.5 mm
White balance : ATW/AWC/MWB setting
Electronic shutter : 8 speeds, selectable by setting
- SHORT: 1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 sec.
- LONG: X1, X2, X4, X8, X16, X32

Electronic sensitivity : AUTO/OFF, up to X32
Electronic zoom : ON/OFF
Continuance, up to X8
Fix, X2/X4/X8
Pan/tilt operation
Motion detector : ON/OFF
Alarm out: 2 pin terminal and RS-485 bus line
AGC : ON/OFF
Gamma : ON/OFF ($\gamma = 1$)
Mirror image effect : H, V, H/V, 3 mode reverse image
Camera ID : ON/OFF, up to 8 characters
Communication : RS-485, operation via SSP
Lens mount : CS mount (or C mount with the supplied adaptor)
Environmental conditions : Temperature: –10˚C ~ +50˚C
Humidity: less than 90% (no condensation)
Power supply : 24 V AC/12 V DC, 60 Hz
Power consumption : 24 V AC :
3.7 W (with auto-iris lens)
3.1 W (without auto-iris lens)
12 - 15 V:
4.0 W (with auto-iris lens)
2.9 W (without auto-iris lens)
Weight : Approx. 470 g (without lens)

SPECIFICATIONS

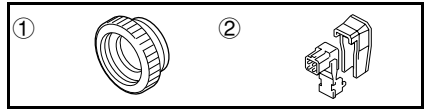
■ **Dimensions: mm**



Features and specifications are subject to change without prior notice or obligations.

ACCESSORIES

① C mount adaptor (5 mm).....1 pc.
The C mount adaptor must be used to be able to install a C mount lens on the camera.
② Lens iris plug (4-pin).....1 pc.



SANYO INDUSTRIAL VIDEO
COLOR VIDEO CAMERA LIMITED WARRANTY

OBLIGATIONS

In order to obtain warranty service, the product must be delivered to and picked up from an Authorized Sanyo Service Center at the user's expense, unless specifically stated otherwise in this warranty. The names and addresses of Authorized Sanyo Service Centers may be obtained by calling the toll-free number listed below.

For product operation, authorized service center referral, service assistance or problem resolution, call
CUSTOMER INFORMATION 1-800-421-5013
Weekdays 8:30 AM – 5:00 PM Pacific Time

For accessories and/or parts, call
PARTS ORDER INFORMATION 1-800-726-9662
Weekdays 8:30 AM – 5:00 PM Pacific Time

THIS WARRANTY IS VALID ONLY ON SANYO PRODUCTS PURCHASED OR RENTED IN THE UNITED STATES OF AMERICA, EXCLUDING ALL U.S. TERRITORIES AND PROTECTORATES. THIS WARRANTY APPLIES ONLY TO THE ORIGINAL RETAIL PURCHASER OR END-USER. THE ORIGINAL DATED BILL OF SALE, SALES SLIP OR RENTAL AGREEMENT MUST BE SUBMITTED TO THE AUTHORIZED SANYO SERVICE CENTER AT THE TIME WARRANTY SERVICE IS REQUESTED.

Subject to the OBLIGATIONS above and EXCLUSIONS below, SANYO Fisher Company warrants this SANYO product against defects in materials and workmanship for the periods specified below. SFC will repair or replace (at its option) the product and any of its parts which fail to conform to this warranty. The warranty period commences on the date the product was first purchased or rented at retail.

LABOR	PARTS	IMAGE DEVICE
3 YEARS	3 YEARS	3 YEARS

EXCLUSIONS

This warranty does not cover (A) the adjustment of customer-operated controls as explained in the appropriate model's instruction manual, or (B) the repair of any product whose serial number has been altered, defaced or removed.

This warranty shall not apply to the cabinet or cosmetic parts, batteries or routine maintenance.

This warranty does not apply to uncrating, setup, installation, removal of the product for repair or reinstallation of the product after repair.

This warranty does not apply to repairs or replacements necessitated by any cause beyond the control of SFC including, but not limited to, any malfunction, defect or failure caused by or resulting from unauthorized service or parts, improper maintenance, operation contrary to furnished instructions, shipping or transit accidents, modification or repair by the user, abuse, misuse, neglect, accident, incorrect power line voltage, fire, flood or other Acts of God, or normal wear and tear.

The foregoing is in lieu of all other expressed warranties and SFC does not assume or authorize any party to assume for it any other obligation or liability.

SFC DISCLAIMS ALL OTHER WARRANTIES EXPRESS OR IMPLIED, WITH REGARD TO THIS PRODUCT (INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS). IN NO EVENT SHALL SFC BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM THE OWNERSHIP OR USE OF THIS PRODUCT OR FOR ANY DELAY IN THE PERFORMANCE OF ITS OBLIGATIONS UNDER THIS WARRANTY DUE TO CAUSES BEYOND ITS CONTROL. SFC'S LIABILITY FOR ANY AND ALL LOSSES AND DAMAGES RESULTING FROM ANY CAUSE WHATSOEVER, ARISING OUT OF OR IN CONNECTION WITH THE SALE, USE OR OWNERSHIP OF THIS PRODUCT INCLUDING WARRANTOR'S NEGLIGENCE, ALLEGED DAMAGED OR DEFECTIIVE GOODS, WHETHER SUCH DEFECTS ARE DISCOVERABLE OR LATENT, SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE PRODUCT.

ATTENTION

For your protection in the event of theft or loss of this product, please fill in the information below for you own personal records.

Model No. _____ **Serial No.** _____
(Located on back or bottom side of unit.)

Date of Purchase _____ **Purchase Price** _____

Where Purchased _____